

REMARKS

Claims 15, 17-20, 30-33, 36-38, and 43-47 were pending prior to this Application. This preliminary amendment cancels claims 17 and 44. Thus, claims 15, 18-20, 30-33, 36-38, 43, and 45-47 are currently pending in this Application.

Before the Request for Continued Examination filed concurrently with this Preliminary Amendment, the Examiner issued a final rejection in an Office Action mailed on April 18, 2002. In that Office Action, Examiner rejected claims 15, 17-20, 30-32, 36-38, 43, and 45-47 under 35 USC 102(e) as anticipated by United States Patent No. 5,778,092 ("MacLeod"). Applicant responded to the office action traversing the rejections and discussed the application with the Examiner over the phone on or within a few days of August 17, 2002.

The Applicants' invention is directed towards an improvement of prior image reconstruction models. In an embodiment, "information from an upper plane is first (prior to making the selection) added to the content of a lower plane." (p.15, lines 9-12). As illustrated in Applicants' Figure 3a, the binary selector plane is used to select data from either the lower plane or the sum of the lower plane and the upper plane. In comparison with prior reconstruction models, as illustrated by Figure 2, this embodiment includes the introduction of an adder, which provides a mechanism to correct for representation errors resulting from classification adjustments. (p.15, lines 12-18). Thus, the selector plane identifies, for each part of the original image, whether the original image information is maintained in an upper plane or a combination of the upper and at least one lower plane of said plural planes.

MacLeod et al. discloses a "technique for compressing scanned representations of color or gray scale documents." (Col. 3, lines 48-49). In one embodiment of MacLeod et al., "the pixel map representing a color or gray-scale document is decomposed into a three plane page format... comprised of a 'foreground' plane, a 'background' plane, and a 'selector' plane." (Col. 4, lines 11-15). The foreground and background plane each contain image information, "stored at the same bit depth and number of colors as the original raw pixel map." (Col. 4, lines 16-17). The selector plane, in contrast, is stored as a bitnap, a binary pixel map in which pixels can take one of two values, 1 or 0. (Col. 4, lines 18-19 and lines 8-10).

In this embodiment of MacLeod et al., the selector plane is used to choose between either a pixel in the foreground plane or a pixel in the background plane, but not both. Further, this embodiment of MacLeod et al. does not disclose performing any sort of arithmetic operation of pixels from more than one plane.

An alternate embodiment of MacLeod et al. creates a decompressed "output at a lower resolution when the document image is displayed on a computer based display system.." (Col. 14, lines 66-67). In this embodiment, a gray-value pixel map is created from the selector plane. (Fig. 25b, step 2510). The binary-valued selector plane is reduced in resolution to form a gray-scale value pixel map. The gray-scale value of each gray-value pixel is determined by computing the scaled sum of the binary pixels of the selector plane contributing to the gray-value pixel. (Col. 15, lines 3-7). The pixels of the decompressed image are computed as "a weighted average of the foreground and background values corresponding to the gray-

valued pixel." (Col. 15, lines 9-12). In this embodiment, the gray-valued pixel is used to weight the sum of the foreground and background pixels.

This embodiment of MacLeod et al. performs a weighted average between corresponding pixels of the foreground and background plane in order to produce the output image. This weighted average is computed for every pixel of the output image. As stated by MacLeod et al. in Step 2511 of Figure 25b, "for each output pixel compute output pixel as weighted average of foreground and background pixel value." (Emphasis Added). In this embodiment of MacLeod, every pixel of the output image is a weighted average of foreground and background pixels. In no embodiment does MacLeod et al. disclose or suggest selecting pixels based on a selector plane that identifies, for each part of the original image, whether the original image information is maintained in an upper plane or a combination of the upper and at least one lower plane of said plural planes.

Independent claims 15, 30, 36 and 43 have been amended to include the distinguishing element of selecting pixels based on a selector plane that identifies, for each part of the original image, whether the original image information is maintained in an upper plane or a combination of the upper and at least one lower plane of said plural planes. Dependent claims 18-20, 31-33, 37-38 and 45-47 depend upon patentably distinguishable independent claims 15, 20, 36 and 43 as well as reciting distinguishing elements within themselves. Applicant respectfully requests reconsideration of the claims herein.

CONCLUSION

In light of the above, Applicant respectfully requests consideration of the claims of the present Application. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: September 18, 2002

By: 

Stephen R. Bachmann
Reg. No. 50,806

FLIESLER DUBB MEYER & LOVEJOY LLP
Four Embarcadero Center, Fourth Floor
San Francisco, California 94111-4156
Telephone: (415) 362-3800

APPENDIX**In the Claims:**

15. (Once Amended) A method for reconstruction of an image, comprising the steps of:
- selecting pixels of the image to be reconstructed from plural planes of data representing the image, wherein said step of selecting comprises selecting pixels [of the image from one of a single plane and an arithmetic operation of pixels from more than one of said plural planes, based on a selector plane that identifies, for each part of the original image, whether the original image information is maintained in an upper plane or a combination of the upper and at least one lower plane of said plural planes.
30. An apparatus for reconstructing an image, comprising:
- a decompression device configured to decompress planes representing the image; and
- a selection device configured to select image data from at least one of the planes and [an arithmetic operation between corresponding] a combination of an upper and at least one lower image sections of at least two of the decompressed planes to reconstruct the image.
36. An apparatus for image reconstruction, comprising:
- means for reconstructing an image based on pixels selected from one of at least one of plural planes representing the image and [an arithmetic operation between] a combination of corresponding pixels of [at least two of said plural planes] the upper and at least one lower plane of said plural planes.

43. (Once Amended) A computer readable media, storing instructions, that when loaded into a computer, cause the computer to perform the step of:

selecting pixels of the image to be reconstructed from plural planes of data representing the image, wherein said step of selecting comprises selecting pixels [of the image from one of a single plane and an arithmetic operation of pixels from more than one of said plural planes,] based on a selector plane that identifies, for each part of the original image, whether the original image information is maintained in an upper plane or a combination of the upper and at least one lower plane of said plural planes.